

WHAT IS CLAIMED IS:

1. An apparatus for audio coding, comprising:
a high-frequency audio coder which encodes
high-frequency components of a digital audio signal;
5 a downsampling unit which lowers a sampling
frequency of the same digital audio signal as the
high-frequency audio coder processes;
a noise suppressor which suppresses noise
components contained in the signal from the
10 downsampling unit; and
a low-frequency audio coder which encodes the
signal processed by the noise suppressor.
2. An apparatus according to claim 1, further
comprising a second noise suppressor which suppresses
15 high-frequency noise components of the digital audio
signal before the digital audio signal is processed by
the high-frequency audio coder and the downsampling
unit.
3. An apparatus according to claim 1, wherein
20 when the high-frequency audio coder is disabled, the
second noise suppressor skips suppression of the
high-frequency noise components and allows the digital
audio signal to pass through it.
4. An apparatus according to claim 1, wherein
25 when the high-frequency audio coder is enabled, the
noise suppressor skips suppression of the low-frequency
noise components, and inputs the digital audio signal

to the low-frequency audio decoder.

5 5. An apparatus according to claim 1, wherein the
high-frequency audio coder includes a high-frequency
noise suppressor which suppresses noise components
contained in the encoded high-frequency audio signal.

6. An apparatus according to claim 1, wherein the
low-frequency audio coder identifies a silence signal
from the digital audio signal, and outputs a signal
indicating the silence signal to the high-frequency
10 audio coder,

the high-frequency audio coder includes a
high-frequency noise suppressor which suppresses noise
components contained in the encoded high-frequency
audio signal, and

15 the high-frequency noise suppressor subtracts a
value corresponding to a gain of the silence signal
from the encoded high-frequency audio signal in
accordance with the silence signal.

20 7. An apparatus according to claim 1, wherein the
high-frequency audio coder includes a high-frequency
noise suppressor which suppresses noise components
contained in the encoded high-frequency audio signal,
and

the apparatus further comprises:

25 a CPU which controls to enable or disable a
function of the high-frequency noise suppressor in
accordance with a coding mode of the digital audio

signal.

8. An apparatus for audio coding, comprising:

a first echo suppressor which suppresses
high-frequency echo components of a digital audio
5 signal;

a high-frequency audio coder which encodes the
signal processed by the first echo suppressor;

a downsampling unit which lowers a sampling
frequency of the same digital audio signal as the first
10 echo suppressor processes;

a second echo suppressor which suppresses echo
components contained in the signal processed by the
downsampling unit; and

a low-frequency audio coder which encodes the
15 signal processed by the second echo suppressor.

9. An apparatus according to claim 8, wherein
when the high-frequency audio coder is disabled, the
first echo suppressor skips suppression of the echo
components and allows the digital audio signal to pass
20 through it.

10. An apparatus according to claim 8, wherein
when the high-frequency audio coder is enabled, the
second echo suppressor skips suppression of the echo
components, and inputs the digital audio signal to the
25 low-frequency audio decoder.

11. An apparatus according to claim 8, wherein the
high-frequency audio coder includes a high-frequency

echo suppressor which suppresses echo components
contained in the encoded high-frequency audio signal.

12. An apparatus according to claim 8, wherein the
high-frequency audio coder includes a high-frequency
5 echo suppressor which suppresses echo components
contained in the encoded high-frequency audio signal,
and

the apparatus further comprises:

a CPU which controls to enable or disable a
10 function of the second high-frequency echo suppressor
in accordance with a coding mode of the digital audio
signal.

13. A method of audio coding, comprising:

encoding high-frequency components of a digital
15 audio signal;

downsampling the digital audio signal being not
encoded;

suppressing noise components contained in the
downsampled digital audio signal; and

20 encoding the digital audio signal the noise
components of which are suppressed.

14. A method of audio coding, comprising:

suppressing echo components contained in a
high-frequency range of a digital audio signal;

25 encoding the high-frequency digital audio signal
the echo components of which are suppressed;

downsampling the digital audio signal;

suppressing echo components of the downsampled digital audio signal; and

encoding a low-frequency digital audio signal the echo components of which are suppressed.